INFORMATION SHEET

ORDER NO. R5-2005-XXX
NPDES NO. CA0081256
KRAFT FOODS, INC.
VISALIA PLANT
TULARE COUNTY

I. INTRODUCTION

Kraft Foods, Inc., a California corporation, owns and operates a milk products processing plant at 715 North Divisadero Street in Visalia, California. Kraft Foods, Inc., is hereafter referred to as Discharger. The discharge was previously governed by Waste Discharge Requirements Order No. 97-122, originally adopted by the Regional Board on 20 June 1997. The Discharger submitted a Report of Waste Discharge (RWD), dated 17 December 2001, and applied for permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES).

II. BENEFICIAL USES OF THE RECEIVING WATER

The plant discharges to Mill Creek. Mill Creek is an ephemeral stream tributary to Cross Creek approximately 10 miles downstream of the discharge. During wet years, Cross Creek discharges to the Tule River, approximately 15 miles downstream of the confluence of Mill Creek with Cross Creek. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan) specifies beneficial uses of Valley Floor Waters and, therefore, Mill Creek as:

- agricultural supply (AGR);
- industrial service supply (IND);
- industrial process supply (PRO);
- water contact recreation (REC-1);
- non-contact water recreation (REC-2);
- warm freshwater habitat (including spawning) (WARM);
- wildlife habitat (WILD);
- support of rare, threatened, or endangered species (RARE); and
- groundwater recharge (GWR).

Based on information from the "Lines of Equal Elevation of Water Wells in Unconfined Aquifer," published by the Department of Water Resources in Spring 1995, the depth of groundwater in the region is about 95 feet below ground surface. The beneficial uses of the underlying groundwater are MUN, IND, PRO, AGR, REC-1, and REC-2.

Mill Creek is an intermittent stream. The intermittent nature of Mill Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Dry conditions occur primarily in the summer months, but may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations for attainment of agricultural water quality goals and aquatic life protection.

III. DESCRIPTION OF EFFLUENT

The Discharger's effluent consists of non-contact cooling water from the initial cooling cycle for three cottage cheese process starter tanks and from evaporation pump seals. The source water is groundwater pumped from an on-site well, which is chlorinated to inhibit biological activity in the cooling system. The non-contact cooling water is discharged from the plant to a storm drain, which discharges to Mill Creek via Discharge 001. The non-contact cooling water is not treated prior to discharge.

The Discharger's RWD describes the discharge as follows:

Maximum Daily Flow Rate: 25,000 gallons per day

Based on data from monthly self-monitoring and laboratory reports submitted by the Discharger between December 2000 and November 2003, the characteristics of the discharge are as follows:

Constituent	Units	Min	Max	Average
Flow	million gallons per day (mgd)	--	--	0.02[1]
Conductivity @ 25º C	µmhos/cm	4	270	155
pH	standard units	6.2	9.64	
Chlorine Residual	mg/L	0	1	0.21
Temperature	º C	16.2	44.6	26.2

[1] The Discharger reported the same flow of 0.02 mgd in each report submitted.

IV. SUMMARY OF CHANGES TO THE CURRENT ORDER

This Order includes changes from the current Order. A summary of the key changes is as follows:

A. Final Effluent Limitations

- Revision of the pH limit to reflect the range required by the water quality objective (WQO) for pH in the Basin Plan.
- Addition of total residual chlorine limit to comply with the narrative WQO for toxic substances from the Basin Plan interpreted using USEPA's recommended acute and chronic aquatic life criteria for chlorine.
- The Basin Plan states that "[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances." The Basin Plan requires that "[a]s a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay." Order No. R5-2005-XXX requires both acute and chronic toxicity monitoring to evaluate compliance with this WQO.

The Basin Plan further states that "…effluent limits based upon acute biotoxicity tests of effluents will be prescribed…" Effluent limitations for acute toxicity have been included in the Order.

B. Receiving Water Limitations

- Addition of receiving water limitations for ammonia, fecal coliform, pesticides, radionuclides, temperature, and taste and odor based on the water quality objectives from the Basin Plan.

C. Groundwater Limitations

- Addition of a groundwater limitation proscribing the discharge from causing underlying groundwater to contain waste constituents in concentrations greater than natural background quality.

D. Provisions

- A requirement to conduct priority pollutant monitoring of the effluent and receiving water to address deficiencies in monitoring required by the letter from the Regional Board dated 27 February 2001 to implement the requirements of the SIP. Monitoring for all priority pollutants is required for the effluent and receiving water.

- A requirement to install a totalizing flow measurement device to monitor the discharge to Mill Creek.

E. Monitoring and Reporting Program

- Addition of effluent and receiving water monitoring requirements for total residual chlorine to determine whether the plant's effluent is contributing to an excursion of the narrative toxicity objective from the Basin Plan.

- Revision of the receiving water monitoring requirements to include receiving water monitoring downstream of the discharge even when effluent is the only flow in Mill Creek. Addition of this requirement allows the Regional Board to monitor parameters not measured for effluent monitoring, as well as to monitor changes in receiving water conditions from the effluent discharge point (Discharge 001) to the downstream sampling station (R-2).

- A requirement to conduct effluent and receiving water monitoring for priority pollutants two times at the end of the term of this Order to provide data for a reasonable potential analysis for the next Order and to comply with the requirements of the SIP.

V. REASONABLE POTENTIAL ANALYSIS AND EFFLUENT LIMITATIONS

The federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law (33 U.S.C.,

§ 1311(b)(1)(C); 40 CFR 122.44(d)(1)). NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." Federal regulations, 40 CFR 122.44(d)(1)(vi), further provide that "[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

Section 1.3 of the SIP requires that the Regional Board impose water quality-based effluent limitations for a priority pollutant if (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR or NTR criterion or applicable site-specific Basin Plan objective, or (2) the ambient background concentration is greater than the CTR or NTR criterion or applicable site-specific Basin Plan objective and the pollutant is detected in the effluent, or (3) other information is available to determine that a water quality-based effluent limitation is necessary to protect beneficial uses.

The Discharger was issued an Order on 27 February 2001 pursuant to CWC Section 13267, requiring effluent and receiving water monitoring meeting the requirements of the SIP. The 13267 letter directed the Discharger to collect effluent and receiving water samples during two sampling events. These data were required in order to assist the Regional Board in conducting reasonable potential analyses (RPAs).

The Discharger submitted effluent monitoring data on 19 June 2003 for a single monitoring event, which partially fulfills the monitoring required in the 27 February 2001 letter. In addition, the data did not include analytical results for sixteen of the seventeen 2,3,7,8-TCDD congeners identified in the SIP. Therefore, the Regional Board is unable to conduct a complete RPA for CTR constituents.

Provision E.4 of this Order directs the Discharger to conduct a Priority Pollutant evaluation study within a time schedule. This Order also includes a reopener to allow the Regional Board to reopen this Order and establish effluent limitations or other requirements if necessary based on the results of the study.

The dates in the compliance schedule do not extend or supercede those in the 27 February 2001 13267 Order. Should the Discharger fail to comply with the compliance schedule, it would be appropriate to assess administrative civil liabilities based on the due dates in the 13267 Order.

1. Summary of Reasonable Potential Analysis – Non-CTR Constituents

Flow

Flow is limited to a maximum daily flow of 0.025 mgd based on the facility's RWD.

pH

The Basin Plan requires that the pH of receiving waters not be depressed below 6.5 or raised above 8.3 standard units. The effluent limitation for pH implements this WQO from the Basin Plan.

Total Residual Chlorine

The Basin Plan states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." Based on data from monthly self-monitoring and laboratory reports submitted by the plant between December 2000 and November 2003, the chlorine concentration in the effluent averaged 0.21 mg/l (210 µg/l), with the highest concentration measured at 1 mg/L (1,000 µg/l). The USEPA has established a National Recommended Ambient Water Quality Criteria for Freshwater Aquatic Life Protection for chlorine of 19 µg/l as a 1-hour average (acute) concentration, and 11 µg/l as a 4-day average (chronic) concentration. Based on this information, there is a reasonable potential that the discharge may cause or contribute to an excursion of the narrative toxicity objective from the Basin Plan.

This Order includes effluent limitations for total residual chlorine calculated as 0.01 mg/L as a monthly average (AMEL) and 0.02 mg/L as a daily maximum (MDEL) using procedures in USEPA's *Technical Support Document for Water Quality-based Toxics Control.* The following equations are taken from the technical support document:

$$LTA_a = ECA_a \times \exp\left(0.5\sigma^2 - z\sigma\right)$$
$$LTA_c = ECA_c \times \exp\left(0.5\sigma_4{}^2 - z\sigma_4\right)$$
$$LTA = \min\left(LTA_c, LTA_a\right)$$
$$AMEL = LTA \times \exp\left(z\sigma_n - 0.5\sigma_n{}^2\right)$$
$$MDEL = LTA \times \exp\left(z\sigma - 0.5\sigma^2\right)$$

where

ECA_a = acute effluent concentration allowance (equals acute criterion if no dilution)
ECA_c = chronic effluent concentration allowance (equals chronic criterion if no dilution)
LTA_a = acute long-term average
LTA_c = chronic long-term average
LTA = most stringent long-term average
AMEL = average monthly effluent limitation
MDEL = maximum daily effluent limitation
σ = standard deviation
CV = coefficient of variation (where $\sigma^2 = \ln(CV^2 + 1)$)
z = z-statistic for 95th percentile probability (to calculate AMEL) or 99th percentile probability (to calculate LTAs and MDEL)
n = number of samples per month (n = 4 minimum)

Using the equations shown above, the water quality-based effluent limits developed for Chlorine Residual are summarized in Table 1.

Table 1
Water Quality-Based Effluent Limits
Chlorine Residual

Priority Pollutant	Aquatic Life Calculations											Selected Limits	
	Saltwater / Freshwater												
	ECA acute = C acute	ECA acute multiplier	LTA acute	ECA chronic = C chronic	ECA chronic multiplier	LTA chronic	Lowest LTA	AMEL multiplier 95	AMEL aquatic life	MDEL multiplier 99	MDEL aquatic life	AMEL	MDEL
	ug/L		ug/L	ug/L		ug/L	ug/L		ug/L		ug/L	mg/L	mg/L
Chlorine Residual[1]	19	0.174[1]	3.3	11	0.321[1]	3.5	3.3	2.13[1]	7.029	5.76[1]	19	0.007	.02

[1] Data obtained from the Discharger resulted in a CV value of 1.2.

Based on the monitoring data available, it appears the discharger cannot consistently comply with the established limitations, and a compliance time schedule is needed. Since the Basin Plan narrative toxicity objective is not a new objective, a schedule of compliance for chlorine is included in an accompanying Time Schedule Order.

Conductivity

The Basin Plan states, on Page III-3 Chemical Constituents, that "*Waters shall not contain constituents in concentrations that adversely affect beneficial uses*." For conductivity (EC), *Ayers R.S. and D.W. Westcott, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985),* reports levels above 700 µmhos/cm will reduce crop yield for sensitive plants. The University of California, Davis Campus, Agricultural Extension Service, published a paper, dated 7 January 1974, stating that there will not be problems to crops associated with salt if the EC remains below 750 µmhos/cm.

The maximum EC measurement for the Discharger's effluent, based on monthly self-monitoring and laboratory reports submitted by the Facility between December 2000 and November 2003, was 270 µmhos/cm. The effluent conductivity does not exceed the agricultural water quality goals. Based on this information, the Regional Board has determined that effluent limitations for conductivity (EC at 25°C) are not required. This Order does, however, maintain the conductivity monitoring required from the previous Order.

2. Basis for Receiving Water Limitations

Receiving water limitations are based on water quality objectives from the Basin Plan and are a required part of this Order. They are included to protect beneficial uses of receiving waters. A receiving water condition not in conformance with a limitation is not necessarily a violation of the Order. The Regional Board may require an investigation to determine cause and culpability prior to asserting that a violation has occurred.

3. Basis for Groundwater Limitations

The Regional Board has determined that the discharge is not likely to impact the underlying groundwater. Therefore, this Order does not include specific groundwater limitations. This Order does include a requirement proscribing the discharge from causing underlying groundwater to contain waste constituents in concentrations greater than natural background quality.

4. Basis for Provisions

Provisions 1 through 8, and 10 through 13 are included in this Order to ensure compliance with the requirements of the Order pursuant to the CWA, CWC, implementing regulations and the Basin Plan. Provision 9, allowing the permit to be re-opened, is based on 40 CFR 122.62.

5. Basis for Self-Monitoring Requirements

Pollutants to be monitored in the influent, effluent, and receiving water include parameters for which effluent limitations are specified, which may affect water quality, or with water quality objectives in the Basin Plan.

REOPENER

The conditions of discharge in this Order were developed based on currently available technical information, currently available discharge and surface water quality information, applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. As additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen this Order if applicable laws and regulations change, or if new information necessitates the implementation of new or revised effluent limitations to adequately protect water quality.

CEQA

The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the CEQA (Public Resources Code Section 21000 et seq.) in accordance with CWC Section 13389.